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Attorney for Applicants

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/849,348	Confirmation No.: 6690
Applicant	:	Robert H. Burgener, II et al.	
Title	:	GROUP II-VI SEMICONDUCTOR DEVICES	
Filed	:	May 19, 2004	
TC/A.U.	:	2814	
Examiner	:	Wai Sing Louie	
Docket No.	:	3398.2.10	
Customer No.	:	21552	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Dear Sir:

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Neither applicants nor their attorneys make any representation that any information disclosed herein may be "prior art" within the meaning of that term under 35 U.S.C. § 102 or § 103. Moreover, pursuant to 37 C.F.R. § 1.97, the filing of this Information Disclosure Statement

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In accordance with 37 C.F.R. § 1.98, transmitted herewith are:

1. A completed copy of Forms PTO/SB/08a and PTO/SB08b "Information Disclosure Statement by Applicant" listing the patents, publications and other information being submitted for consideration; and
2. A legible copy of each patent, publication and other item of information in written form listed on the enclosed Forms PTO/SB/08a and PTO/SB/08b, except for copies of U.S. patents and published U.S. patent applications which are not required for applications filed after June 30, 2003.

Respectfully submitted,



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Date: October 3, 2005

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PTO/SB/08a (08-03)

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Substitute for form 1449A/PTO		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Application Number	10/849,348
(use as many sheets as necessary)		Filing Date	May 19, 2004
Sheet 1 Of 1		First Named Inventor	Robert H. Burgener, II
		Group Art Unit	2814
		Examiner Name	Wai Sing Louie
		Attorney Docket Number	3398.2.10

U.S. PATENT DOCUMENTS					
Examiner Initials *	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code ² (if known)			
U1	US-2004/0061114 A1		04/01/2004	Yan et al.	
U2					
U3					
U4					
U5					
U6					
U7					
U8					
U9					
U10					
U11					
U12					
U13					
U14					

FOREIGN PATENT DOCUMENTS					
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Sheet 1 Of 9

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First Named Inventor	Robert H. Burgener, II
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	3398.2.10

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
O1	AULBUR, W.;	Density Functional Theory: Basic Ideas & Applications; Ohio State University.	•
O2	LOOK, D.C., and CLAFLIN, B.;	P-type doping and devices based on ZnO; 08/2003; Wiley-VCH Verlag GmbH & Co.	•
O3	ZUNGER, A.;	Practical Doping Principles; NCPV and Solar Program Review Meeting 2003; pp. 831-835.	•
O4	ZHANG, S.B., WEI, S.H., and ZUNGER, A.;	Intrinsic <i>n</i> -type versus <i>p</i> -type doping asymmetry and the defect physics of ZnO; Physical Review B; 01/31/2001; pp. 075205-1 - 075205-7; Volume 63; The American Physical Society.	•
O5	LIMPIJUMNONG, S., ZHANG, S.B., WEI, S-H., and PARK C.H.;	Doping by Large-Size-Mismatched Impurities: The Microscopic Origin of Arsenic- or Antimony-Doped <i>p</i> -Type Zinc Oxide; Physical Review Letters; 04/16/2004; Volume 92, Number 15; The American Physical Society.	•
O6	YAMAMOTO, T., and KATAYAMA-YOSHIDA, H.;	Solution Using a Codoping Method to <i>Unipolarity</i> for the Fabrication of <i>p</i> -Type ZnO; Japanese Journal of Applied Physics; 02/15/1999; pp. L 166-L 169; Volume 38; Japanese Journal of Applied Physics Publication Board.	•
O7	PARK, C.H., ZHANG, S.B., and WEI, S-H.;	Origin of <i>p</i> -type doping difficulty in ZnO: The impurity perspective; Physical Review B; 08/05/2002; pp. 073202-1 - 073202-3; Volume 66; The American Physical Society.	•
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O10	WANG, L.G., and ZUNGER, A.;	Cluster-Doping Approach for Wide-Gap Semiconductors: The Case of <i>p</i> -type ZnO; Physical Review Letters; 06/27/2003; pp. 256401-1 - 256401-4; Volume 90, Number 25; The American Physical Society.	•
O11	NORTON, D.P., HEO, Y.W., IVILL, M.P., IP, K., PEARTON, S.J., et al;	ZnO: growth, doping and processing; Materialstoday; 06/2004; Elsevier Ltd.	•
O12	LEE, E-C., KIM, Y.-S., JIN, Y.-G., and CHANG, K.J.;	First-Principles Study of <i>p</i> -Type Doping and Codoping in ZnO; Journal of the Korean Physical Society; 12/2001; pp. S23-S26; Volume 39.	•
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O14	BANDYOPADHYAY, S., PAUL, G.K., ROY, R., SEN, S.K., and SEN, S.;	Study of structural and electrical properties of grain-boundary modified ZnO films prepared by sol-gel technique; Materials Chemistry and Physics; 05/17/2001; pp. 83-91; Volume 74; Elsevier Science B.V.	•

Examiner Signature	Date Considered
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Substitute for form 1449B/PTO		Complete if Known	
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		Filing Date	May 19, 2004
		First Named Inventor	Robert H. Burgener, II
		Group Art Unit	2814
		Examiner Name	Wai Sing Louie
		Attorney Docket Number	3398.2.10
Sheet 2 Of 9			

	O15	WILKINSON, J., XIONG, G., UCER, K.B., and WILLIAMS, R.T.; Lifetime and Oscillator Strength of Excitonic Luminescence in Zinc Oxide; Department of Physics, Wake Forest University, Winston-Salem, NC.	
	O16	KOBAYASHI, A., SANKEY, O.F., and DOW, J.D.; Deep energy levels of defects in the wurtzite semiconductors AlN, CdS, CdSe, and ZnO; Physical Review B; 07/15/1983; pp. 946-956; Volume 28, Number 2; The American Physical Society.	
	O17	DANEU, N., REENIK, A., and BERNIK, S.; Grain Growth Control in Sb ₂ O ₃ -Doped Zinc Oxide; Journal of the American Ceramic Society; 2003; pp. 1379-1384; Volume 86, Number 8.	
	O18	OHYAMA, M.; Sol-Gel Preparation of Transparent and Conductive Aluminum-Doped Zinc Oxide Films with Highly Preferential Crystal Orientation; Journal of the American Ceramic Society; 1998; pp. 1622-1632; Volume 81, Number 6.	
	O19	DUAN, X.L., YUAN, D.R., CHENG, X.F., SUN, H.Q., SUN, Z.H., et al; Microstructure and Properties of Co ²⁺ ZnAl ₂ O ₄ /SiO ₂ Nanocomposite Glasses Prepared by Sol-Gel Method; Journal of the American Ceramic Society; 2005; pp. 399-403; Volume 88, Number 2.	
	O20	SOHN, K.S., HWANG, D.K., and MYOUNG, J.M.; Time Integrated/Resolved Photoluminescence of ZnO Films Deposited on Sapphire and GaAs; Japanese Journal of Applied Physics; 12/2003; pp. 7376-7378; The Japan Society of Applied Physics.	
	O21	SUN, X.W.; Optical properties of epitaxially grown zinc oxide films on sapphire by pulsed laser deposition; Journal of Applied Physics; 07/01/1999; pp. 408-411; Volume 86, Number 1; American Institute of Physics.	
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	O24	QIU, C., CHEN, H., WONG, M., and KWOK, H.S.; Dependence of the Current and Power Efficiencies of Organic Light-Emitting Diode on the Thickness of the Constituent Organic Layers; IEEE Transactions On Electron Devices; 09/2001; pp. 2131-2137; Vol. 48; IEEE.	
	O25	MATSUDA, T., KAWABE, M., IWATA, H., and OHZONE, T.; Visible Electroluminescence from MOS Capacitors with Si-Implanted SiO ₂ ; IEICE Trans. Electron.; 09/11/2002; pp. 1895-1904; Vol. E85-C, No. 11.	
	O26	ONG, H.C., LI, A.S.K., and DU, G.T.; Depth profiling of ZnO thin films by cathodoluminescence; Applied Physics Letters; 04/30/2001; pp. 2667-2669; Vol. 78, No. 18; American Institute of Physics.	
	O27	WASHINGTON, P.L., ONG, H.C., DAI, J.Y., and CHANG, R.P.H.; Determination of the optical constants of zinc oxide thin films by spectroscopic ellipsometry; Applied Physics Letter; 06/22/1998; pp. 3261-3263; Vol. 72, No. 25; American Institute of Physics.	
	O28	SEKIGUCHI, T., OHASHI, N., and YAMANE, H.; Cathodoluminescence Study on ZnO and GaN; Solid State Phenomena; 1998; pp. 171-182; Vols. 63-64; Scitec Publications; Switzerland.	
	O29	KOYUATE, D., RONFARD-HARET, J.-C., and KOSSANYI, J.; Photo- and electroluminescence of rare earth-doped semiconducting zinc oxide electrodes: Emission from both the dopant and the support; Journal of Luminescence; 1991; pp. 205-210; Vol. 50; Elsevier Science Publishers B.V.	

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Sheet 3 Of 9

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Filing Date	May 19, 2004
First Named Inventor	Robert H. Burgener, II
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	3398.2.10

O30	KOSSANYI, J., KOUYATE, D., POULIQUEN, J., RONFARD-HARET, J.C., VALAT, P., et al.; Photoluminescence of Semiconducting Zinc Oxide Containing Rare Earth Ions as Impurities; Journal of Luminescence; 1990; pp. 17-24; Vol. 46; Elsevier Science Publishers B.V. (north-Holland).	3
O31	WANG, Y.G., LAU, S.P., LEE, H.W., YU, S.F., TAY, B.K., et al.; Photoluminescence study of ZnO films prepared by thermal oxidation of Zn metallic films in air; Journal of Applied Physics; 07/01/2003; pp. 354-358; Vol. 94, No. 1; American Institute of Physics.	4
O32	YU, S.F., YUEN, C., LAU, S.P., WANG, Y.G., LEE, H.W., et al.; Ultraviolet amplified spontaneous emission from zinc oxide ridge waveguides on silicon substrate; Applied Physics Letter; 11/24/2003; pp. 4288-4290; Vol. 83, No. 21; American Institute of Physics.	5
O33	XIONG, G., WILKINSON, J., LYLES, J., UCER, K.B., and WILLIAMS, R.T.; Luminescence and stimulated emission in zinc oxide nanoparticles, films, and crystals.	6
O34	ONG, H.C., DAI, J.Y., and DU, G.T.; Studies of electronic structure of ZnO grain boundary and its proximity by using spatially resolved electron energy loss spectroscopy; Applied Physics Letter; 07/08/2002; pp. 277-279; Vol. 81, No. 2; American Institute of Physics.	7
O35	AGNE, T., GUAN, Z., LI, X.M., WOLF, H., and WICHERT, T.; Incorporation of the Donor Indium in Nanocrystalline ZnO; phys. stat. sol.; 2002; pp. 819-823; Vol. 229; WILEY-VCH Verlag Berlin GmbH; Berlin.	8
O36	QADRI, S.B., KIM, H., HORWITZ, J.S., and CHRISEY, D.B.; Transparent conducting films of ZnO-ZrO ₂ : Structure and properties; Journal of Applied Physics; 12/01/2000; pp. 6564-6566; Vol. 88, No. 11; American Institute of Physics.	9
O37	HAN, J., MANTAS, P.Q., and SENOS, A.M.R.; Grain growth in Mn-doped ZnO; Journal of the European Ceramic Society; 2000; 2753-2758; Vol. 20.	10
O38	JIN, Y., ZHANG, B., YANG, S., WANG, Y., CHEN, J., et al.; Room temperature UV emission of Mg _x Zn _{1-x} O films; Solid State Communications; 2001; pp. 409-413; Vol. 119; Elsevier Science Ltd.	11
O39	PETRIK, N.G., ALEXANDROV, A.B., and VALL, A.I.; Interfacial Energy Transfer during Gamma Radiolysis of Water on the Surface of ZrO ₂ and Some Other Oxides; J. Phys. Chem. B; 2001; pp. 5935-5944; Vol. 105, American Chemical Society.	12
O40	COUNIO, G., ESNOUF, S., GACOIN, T., and BOILLOT, J.-P.; CdS:Mn Nanocrystals in Transparent Xerogel Matrices: Synthesis and Luminescence Properties; J. Phys. Chem.; 1996; pp. 20021-20026; Vol. 100; American Chemical Society.	13
O41	STRAVREV, K., KYNEV, K., ST. NIKOLOV, G., and DYAKOVITCH, V.A.; Semiempirical Assignment of the Electron Transitions in Manganese(II)-Doped II-VI Compounds; J. Phys. Chem. Solids; 1987; pp. 841-844; Vol. 48, No. 9; Pergamon Journals Ltd.	14
O42	FALCONY, C., ORTIZ, A., DOMINGUEZ, J.M., FARIAS, M.H., COTA-ARAIZA, L. et al.; Luminescent Characteristics of Tb Doped Al ₂ O ₃ Films Deposited by Spray Pyrolysis; J. Electrochem Soc.; 01/1992; pp. 267-271; Vol. 139, No. 1; The Electrochemical Society, Inc.	15
O43	BACHIR, S., KOSSANYI, J., SANDOULY, C., VALAT, P., and RONFARD-HARET, J.C.; Electroluminescence of Dy ³⁺ and Sm ³⁺ Ions in Polycrystalline Semiconducting Zinc Oxide; J. Phys. Chem.; 1995; pp. 5674-5679; Vol. 99; American Chemical Society.	16
O44	BACHIR, S., KOSSANYI, J., and RONFARD-HARET, J.C.; Electroluminescence of Ho ³⁺ Ions in a ZnO Varistor-Type Structure; Solid State Communications; 1993; pp. 859-863; Vol. 89, No. 10; Elsevier Science Ltd.; Great Britain.	17
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		Attorney Docket Number	3398.2.10

O46	ARKLES, B.; Commercial Applications of Sol-Gel-Derived Hybrid Materials; MRS Bulletin; 05/2001; pp. 402-407.	
O47	MURRAY, C.E., NOYAN, I.C., and MOONEY, P.M.; Mapping of strain fields about thin film structures using x-ray microdiffraction; Applied Physics Letters; 11/17/2003; pp. 4163-4165; Vol. 83, No. 20; American Institute of Physics.	
O48	MODENA, S., SORARU, G.D., BLUM, Y., and RAJ, R.; Passive Oxidation of an Effluent System: The Case of Polymer-Derived SiCO; Journal of the American Ceramic Society; 2005; pp. 339-345; Vol. 88.	
O49	NOYAN, I.C., WANG, P.-C., KALDOR, S.K., and JORDAN-SWEET, J.L.; Deformation field in single-crystal fields semiconductor substrates caused by metallization features; Applied Physics Letters; 04/19/1999; pp. 2352-2354; Vol. 74, No. 16; American Institute of Physics.	
O50	NOYAN, I.C., JORDAN-SWEET, J., LINIGER, E.G., and KALDOR, S.K.; Characterization of substrate-thin-film interfaces with x-ray microdiffraction; Applied Physics Letters; 06/22/1998; pp. 3338-3340; Vol. 72, No. 25; American Institute of Physics.	
O51	TULLER, H.L.; ZnO Grain Boundaries: Electrical Activity and Diffusion; Journal of Electroceramics; 1999; pp. 33-40; Vol. 4:S1; Kluwer Academic Publishers; Boston.	
O52	WESTIN, G., EKSTRAND, A., NYGREN, M., OSTERLUND, R., and MERKELBACH, P.; Preparation of ZnO-based Varistors by the Sol-Gel Technique; J. Mater. Chem.; 1994; pp. 615-621; Vol. 4.	
O53	WANG, M., YANG, X., and WANG, F.; Properties of Sensitive Materials Mainly Composed of ZnO; J. Mater. Sci. Technol.; 2000; p. 204; Vol. 16, No. 2.	
O54	BAPTISTA, J.L., and MANTAS, P.Q.; High Temperature Characterization of Electrical Barriers in ZnO Varistors; Journal of Electroceramics; 2000; pp. 215-224; Vol. 4:1; Kluwer Academic Publishers; The Netherlands.	
O55	BRANKOVIC, Z., BRANKOVIC, G., POLETI, D., and VARELA, J.A.; Structural and electrical properties of ZnO varistors containing different spinel phases; Ceramics International; 2001; pp. 115-122; Vol. 27; Elsevier Science Ltd. And Techna S.r.l.	
O56	TANAKA, A., and MUKAE, K.; Evaluation of Single Grain Boundaries in ZnO: Rare-Earth Varistor by Micro-Electrodes; Key Engineering Materials; 1999; pp. 235-240; Vols. 157-158; Trans Tech Publications, Switzerland; CSJ Series-Publications of the Ceramic Society of Japan Vol. 1, The Ceramic Society of Japan.	
O57	PANDEY, R., JAFFE, J.E., and KUNZ, A.B., <i>Ab initio</i> band-structure calculations for alkaline-earth oxides and sulfides; Physical Review B; 04/15/1991; pp. 9228-9237; Vol. 43, No. 11; The American Physical Society.	
O58	CANNEY, S.A., SASHIN, V.A., FORD, M.J., and KHEIFETS, A.S.; Electronic band structure of magnesium and magnesium oxide: experiment and theory; J. Phys. Condens. Matter; 1999; pp. 7507-7522; Vol. 11; IOP Publishing Ltd.	
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Examiner Signature		Date Considered	
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Sheet 5 Of 9

Complete if Known

Application Number	10/849,348
Filing Date	May 19, 2004
First Named Inventor	Robert H. Burgener, II
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	3398.2.10

O62	NARAZAKI, A., TANAKA, K., HIRAO, K., HASHIMOTO, T., NASU, H., et al.; IR and XPS Studies on the Surface Structure of Poled ZnO-TeO ₂ Glasses with Second-Order Nonlinearity; Journal of the American Ceramic Society; 2001; pp. 214-217; Vol. 84.
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First Named Inventor	Robert H. Burgener, II
Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	3398.2.10

O78	WANG, X., DU, G., GU, C., JIA, J., LI, X., et al.; Two-step growth of ZnO thin films on diamond/Si low-pressure metal-organic chemical vapour deposition; <i>J. Phys. D: Appl. Phys.</i> ; 2002; pp. L74-L76; Vol. 35; IOP Publishing Ltd., United Kingdom.	•
O79	HAN, J., MANTAS, P.Q., and SENOS, A.M.R.; Grain growth in Mn-doped ZnO; <i>Journal of the European Ceramic Society</i> ; 2000; pp. 2753-2758; Vol. 20; Elsevier Science Ltd.	•
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O90	TEKE, A., OZGUR, U., DOGAN, S., GU, X., MORKOC, H., et al.; Excitonic fine structure and recombination dynamics in single-crystalline ZnO; <i>Physical Review B</i> ; 2004; pp. 195207-1 – 195207-10; Vol. 70; The American Physical Society.	•
O91	LOOK, D.C., REYNOLDS, D.C., LITTON, C.W., JONES, R.L., EASON, D.B., et al.; Characterization of homoepitaxial <i>p</i> -type ZnO grown by molecular beam epitaxy; <i>Applied Physics Letters</i> ; 09/02/2002; pp. 1830-1832; Vol. 81, No. 10; American Institute of Physics.	•
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Sheet 7 Of 9		First Named Inventor	Robert H. Burgener, II
		Group Art Unit	2814
		Examiner Name	Wai Sing Louie
		Attorney Docket Number	3398.2.10

O94	SENGER, R.T., and BAJAI, K.K.; Binding energies of excitons in polar quantum well heterostructures; Physical Review B; 2003; pp. 205314-1 -205314-9; Vol. 68; The American Physical Society.	•
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O105	TOMLINS, G.W., ROUTBORT, J.L., and MASON, T.O.; Oxygen Diffusion in Single-Crystal Zinc Oxide; Journal of the American Ceramic Society; 1998; pp. 869-876; Vol. 81.	•
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O107	XIONG, G., WILKINSON, J., MISCHUCK, B., TUZEMEN, S., UCER, K.B., et al.; Control of p- and n-type conductivity in sputter deposition of undoped ZnO; Applied Physics Letters; 02/18/2002; pp. 1195-1197; Vol. 80, No. 7; American Institute of Physics.	•
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(use as many sheets as necessary)		Filing Date	May 19, 2004
Sheet	8	First Named Inventor	Robert H. Burgener, II
		Group Art Unit	2814
		Examiner Name	Wai Sing Louie
		Attorney Docket Number	3398.2.10

O110	LEE, J-M., KIM, K.K., PARK, S-J., and CHOI, W.K.; Low-resistance and non-alloyed ohmic contacts to plasma treated ZnO; Applied Physics Letters; 06/11/2001; pp. 3842-2844; Vol. 78, No. 24; American Institute of Physics.	•
O111	YAMAMOTO, T.; Codoping Method to Realize Low-Resistivity p-type ZnO Thin Films; Asia Display/IDW '01, Oct. 16-19, 2001, Nagoya, Oct. 18, PH1-2.	•
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O114	RECNIK, A., DANEU, N., WALTHER, T., and MADER, W.; Structure and Chemistry of Basal-Plane Inversion Boundaries in Antimony Oxide-Doped Zinc Oxide; Journal of the American Ceramic Society; 2001; pp. 2357-2668; Vol. 84.	•
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O117	LU, J., YE, Z., WANG, L., HUANG, J., and ZHAO, B.; Structural, electrical and optical properties of N-doped ZnO films synthesized by SS-CVD; Materials Science in Semiconductor Processing; 2003; pp. 491-496; Vol. 5; Elsevier Science Ltd.	•
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O120	YE, Z-Z., LU, J-G., CHEN, H-H., ZHANG, Y-Z., WANG, L., et al.; Preparation and characteristics of p-type ZnO films by DC reactive magnetron sputtering; Journal of Crystal Growth; 2003; pp. 258-264; Vol. 253; Elsevier Science B.V.	•
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Group Art Unit	2814
Examiner Name	Wai Sing Louie
Attorney Docket Number	3398.2.10

O126	JOHNSON, S.; LEDs—An Overview of the State of the Art in Technology and Application; Light Right 5 Conference, May 27-31, 2002, Nice, France.	
O127	TUZEMEN, S., XIONG, G., WILKINSON, J., MISCHICK, B., UCER, K.B., et al.; Production and properties of p-n junctions in reactively sputtered ZnO; Physica B; 2001; pp. 1197-1200; Vol. 308-310; Elsevier Science B.V.	
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